(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau





## (43) International Publication Date 21 May 2004 (21.05.2004)

PCT

## (10) International Publication Number WO 2004/041847 A1

C07K 1/00, (51) International Patent Classification7: G01N 33/68, C30B 29/58, 7/00, B01D 9/02

(21) International Application Number:

PCT/GB2003/004875

(22) International Filing Date:

7 November 2003 (07.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0225980.2

7 November 2002 (07.11.2002)

(71) Applicant (for all designated States except US): IM-PERIAL COLLEGE INNOVATIONS LIMITED [GB/GB]; Sherfield Building, Imperial College, London SW7 2AZ (GB).

(72) Inventors; and

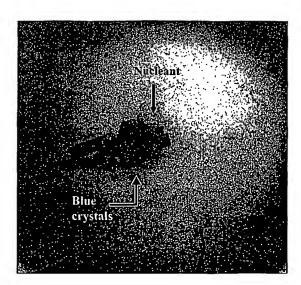
(75) Inventors/Applicants (for US only): CHAYEN, Naomi

[GB/GB]; Biological Structure & Function Section, Division of Biomedical Sciences, Sir Alexander Fleming Building, Faculty of Medicine, Imperial College, London SW7 2AZ (GB). HENCH, Larry [US/GB]; Centre for Tissue Engineering, Department of Materials, Imperial College of Science, Technology & Medicine, Prince Consort Road, London SW7 2BP (GB).

- (74) Agent: PILKINGTON, Stephanie; Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: MESOPOROUS GLASS AS NUCLEANT FOR MACROMOLECULE CRYSTALLISATION



(57) Abstract: A method of facilitating the crystallisation of a macromolecule comprising the step of adding a mesoporous glass to a crystallisation sample wherein the mesoporous glass comprises pores having diameters between 4nm and 100nm and has a surface area of at least 50 m<sup>2</sup>/g. A method of facilitating the crystallisation of a macromodecule comprising the step of adding to a crystallisation sample a mesoporous glass of the composition SiO<sub>2</sub>; CaO-P<sub>2</sub>O<sub>5</sub>-SiO<sub>2</sub> or Na<sub>2</sub>O-CaO-P<sub>2</sub>O<sub>5</sub>-SiO<sub>2</sub>, wherein each of the Ca, P, Si or Na atoms within the compositions may be substituted with a suitable atom chosen from B, Al, Ti, Mg, or K, and, optionally, the composition may also include heavy elements to enhance X-ray diffraction contrast such as Ag, Au, Cr, Co, Sr, Ba, Pt, Ta or other atom with an atomic number over 20.



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

- with international search report

 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.